

CLAIMS

1. A connecting and disconnecting device for connecting a connector by mating to an electronic circuit card, said electronic circuit card comprising a mating connector, said connecting device comprising:

an electronic circuit card support, said electronic circuit card support comprising locating pins engageable with said electronic circuit card for positioning said electronic circuit card relative to said connecting device;

a frame fixedly disposed relative to said electronic circuit card support;

a movable member disposed for confined movement toward and away from said electronic circuit card support;

said movable member carrying at least one biasing spring and at least one engaging member biased by said spring toward said electronic circuit card support and away from said movable member and further displaceable against said spring-bias and translatable relative to said movable member;

said movable member further comprising a clamp for holding and translating said connector with said movable member,

whereby actuation of said actuating assembly displaces said moveable member relative to said frame, said connector relative to said mating connector and connectingly mates said connector and said mating connector.

2. The connecting and disconnecting device for connecting by mating a connector to an electronic circuit card of claim 1 wherein said electronic circuit card support comprises a support material disposed thereon in positions surrounding a region of said electronic circuit card comprising electrical conductors electrically associated with said mating connector.

3. The connecting and disconnecting device for connecting by mating a connector to an electronic circuit card of claim 2 wherein said actuator comprises a toggle.

4. The connecting and disconnecting device for connecting by mating a connector to an electronic circuit card of claim 3 wherein said actuator comprises a manually operable handle.

5. The connecting and disconnecting device for connecting by mating a connector to an electronic circuit card of claim 4 wherein said frame comprises a ⁶⁵guide engaged with said moveable member confining said movement to a toward and away motion relative to said electronic circuit card support.

6. The connecting and disconnecting device for connecting by mating a connector to an electronic circuit card of claim 5 wherein said guide comprises at least two parts, one of said parts constrained for only reciprocal, linear movement relative to the other of said parts.

7. The connecting and disconnecting device for connecting by mating a connector to an electronic circuit card of claim 1 wherein said clamp comprises a base member and a ^{not shown}holding member and said holding member is restrained relative to said base member by fasteners.

8. The connecting and disconnecting device for connecting by mating a connector to an electronic circuit card of claim 1 wherein said engaging member comprises a surface disposable for engagement with one surface of said electronic circuit card and forcing said electronic circuit card toward said electronic circuit card support.

9. The connecting and disconnecting device for connecting by mating a connector to an electronic circuit card of claim 8 wherein said spring exerts force through said engaging member on said electronic circuit card in excess of any force exerted on said connector by said mating connector to disconnect said connector from said mating connector.

10. A method of connecting a connector to a mating connector on an electronic circuit card comprising:

providing an apparatus comprising a frame, an electronic circuit card support, a moveable member displaceable relative to said frame and confined for movement only toward and away from said electronic circuit card support, said moveable member supporting a clamp and said connector and at least one spring exerting a spring-bias on an engaging member, said engaging member disposable for engagement with said electronic circuit card and an electronic connector retained within said clamp, said moveable member connected to a toggle assembly;

positioning said moveable member, said clamp, said connector disposed within said clamp and said spring-biased engaging member displaced from said electronic circuit card support;

disposing an electronic circuit card and a mating connector aligned with said connector within said clamp;

displacing said moveable member toward said electronic circuit card support and against said spring-bias, thereby trapping said electronic circuit card against said electronic circuit card support, and

further displacing said moveable member, said clamp and said connector into a connected position, thereby mating and connecting said connector with said mating connector.

11. The method of connecting a connector to a mating connector on an electronic circuit card of claim 10 comprising an additional step of locking said movable member in said connected position.

12. The method of connecting a connector to a mating connector on an electronic circuit card of claim 11 wherein said locking step comprises displacing a toggle joint in a position whereby force of said spring-bias on said toggle joint is prevented from disconnecting said connector and said mating connector.

13. A method of connecting and disconnecting a connector to a mating connector on an electronic circuit card comprising:

providing an apparatus comprising a frame, an electronic circuit card support, a moveable member displaceable relative to said frame and confined for movement only toward and away from said electronic circuit card support, said moveable member supporting a clamp and said connector held by said clamp and at least one spring exerting a spring-bias on an engaging member, said engaging member disposed for engagement with said electronic circuit card and an electronic connector retained within said clamp, said moveable member connected to a toggle assembly;

positioning said moveable member, said clamp, said connector and said spring-biased engaging member displaced from said electronic circuit card support;

disposing an electronic circuit card and a mating connector aligned with said connector held by said clamp;

displacing said moveable member toward said electronic circuit card support and against said spring-bias, thereby trapping said electronic circuit card against said electronic circuit card support,

further displacing said movable member, said clamp, said connector into a connected position connecting said connector with said mating connector,

thereafter, displacing said movable member away from said electronic circuit card and said electronic circuit card support, responsive to forces provided at least in part by said spring;

separating said connector and said mating connector;

further permitting extension of said spring; and

withdrawing said movable member away from said electronic circuit card.

14. The method of connecting and disconnecting a connector to a mating connector on an electronic circuit card of claim 13 comprising an additional step of locking said movable member in said connected position.

15. The method of connecting and disconnecting a connector to a mating connector on an electronic circuit card of claim 14 wherein said locking step comprises displacing a toggle joint in a position whereby force of said spring-bias on said toggle joint is prevented from disconnecting said connector and said mating connector.

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16. The method of connecting and disconnecting a connector to a mating connector on an electronic circuit card of claim 14 comprising the further step of displacing said toggle assembly to a position locking said movable member, preventing movement of said movable member under the influence of said spring-bias, and a subsequent step of displacing said toggle assembly to a position unlocking said movable member permitting movement of said movable member under at least a force partially provided by said spring-bias.

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17. The method of connecting and disconnecting a connector to a mating connector on an electronic circuit card of claim 15 comprising the further step of displacing said toggle assembly to a position locking said movable member, preventing movement of said movable member under the influence of said spring-bias, and a subsequent step of displacing said toggle assembly to a position unlocking said movable member permitting movement of said movable member under at least a force partially provided by said spring-bias.

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